





J. Smit del et lith.

ICTHYOMYS SÖDERSTRÖMI.

Museum, Bres. imp.

The following papers were read :—

1. On some Mammals from Ecuador.

By W. E. DE WINTON, F.Z.S.

[Received March 17, 1896.]

(Plates XIX. & XX.)

In the absence of Mr. Oldfield Thomas, I have been entrusted by Sir William Flower with the working out of a small collection of mammals from Ecuador, presented to the British Museum by Mr. Ludovicio Söderström, H.M. Consul at Quito. The collection consisted principally of a large number of beautifully prepared bird-skins, chiefly Humming-birds; but though only three mammals were included, these furnish us with a knowledge of two very interesting species new to science. One is a distinct species of small deer of the genus *Pudu*. Since Bennett described the type in the P. Z. S. 1831, p. 27, from a female then living in the Society's Gardens, as *Cervus humilis*, no additional species have been discovered; and as this animal has been found only in the forests of Chili and on the adjacent island of Chiloe, the more northern habitat of an allied species is of special interest. The second specimen in the collection adds a third species to the genus *Ichthyomys*, the curious fish-eating rodents, described by Oldfield Thomas in the P. Z. S. 1893, pp. 337-340, hitherto known only from the great eastern slope of the Andes. The third specimen is one of the well-known Water-Opossum (*Chironectes minimus*), of wide range in tropical South America.

Very little is known of the mammalian fauna of the country from which this collection was made; but we may hope, with the kind assistance of such a good collector and keen naturalist as our present Consul, before long to considerably improve our knowledge, and I have great pleasure in naming one of the species in his honour.

Quito has the distinction of being the highest capital in the world, situated between the Eastern and Western Cordilleras in a lofty valley about 9000 feet above sea-level. The Paramo of Papallacta, whence the new Pudu comes, lies east of Quito, only just south of the Equator, and forms the roof of the great Amazonian water-shed: it is a vast tableland about 11,000 feet above the sea, with mountains of between 18,000 and 19,000 feet to north and south of it; these are the summits of the Eastern Cordilleras and are mostly active volcanoes. The Rio Machangara, where the *Ichthyomys* was obtained, is the stream upon which Quito is built; it joins the Rio de San Pedro a little further north, and this river, draining the valley between the two ranges, is thence known as the Guallabamba, which, cutting through the Western Cordilleras, flows into the Pacific Ocean. The Opossum comes from the banks of the Nanegal River, which is to the west of Quito and joins the Guallabamba lower down, its course being entirely on the west of the Cordilleras.

1. *PUDUA MEPHISTOPHILES*, sp. n. (Plate XIX.)

The hair of the body is long and coarse, its basal portion peculiarly brittle and pith-like; the terminal half is black with ferruginous tips, producing a rich brown colour. The dorsal region is darker than the flanks, owing to the hairs having broader black bands with correspondingly reduced coloured tips; on the neck the tips are paler and longer, the black being much reduced, which gives a tawny appearance; towards the head the black again increases, till the shorter hairs of the ears, face, and chin are almost black. The ears are thickly covered inside and out with hair, that on the inside being broadly tipped with white. The fore and hind-feet are black, most of the hairs being minutely tipped with buff; the inner sides of the legs and the abdomen are clothed with long yellowish hair of a finer and more ordinary character. There is no turn in the hair of the face, the hair growing upwards from the nose. The ears are very short and partially concealed by the rough hair. The rhinarium from the nostrils down is deep. Tail entirely wanting.

Measurements from skin (type ♀ juv. no. 96, i. 28. 3, in Brit. Mus.):—

Height at withers, about	320 millim.
Length of hind foot (without hoof) ..	136 "
" ear	53 "

With the measurements of the skull I give those of the adult female described by Bennett, P. Z. S. 1831, p. 27, for comparison, so far as it is possible, the basal portion of the skull being unfortunately damaged.

Table of Measurements.

	<i>P. mephisto- philes.</i>	<i>P. humilis.</i>
Greatest length, in straight line [points of p.mx. to base]	millim. 160	millim. —
Greatest breadth [across zygomatic process of squamosal]	75	61
Nasals, greatest length	41	40
" " breadth	22	16·5
Points of premaxilla to end of nasals	27	28
Breadth of antenarial opening	16	14
Point of premaxilla to anterior rim of orbit	72	64
Antorbital fossa, breadth	10	8
" " length	15	14
Basifacial length	102	—
Basiscranial "	39	—
Length of molar series	50	45
Distance between p.ms. ¹	23	19·5
" " ms. ¹	29	28·5
" " ms. ²	34	27
Front of molar series to point of premaxilla	46·5	38·5
Palatal incisive foramina, length	19	20
" " " breadth	12	10
Mandibles missing.		

Hab. Paramo of Papallacta. Taken by the Indians. Very rare there (*L. S.*).

The general colouring of the animal is very distinct from the type species *P. humilis*, for whereas the latter is a bright chestnut with duller neck and very bright-coloured back, feet, and forehead, the new animal is black-brown sprinkled with fire-red, bright tawny-coloured neck, and almost black head and legs. The ears are very much shorter and are covered with much longer fur especially on the inner side, where they are white, this spot being very conspicuous among the dark surroundings. The tail is wanting, whereas in *P. humilis* it is fully an inch long. It is much to be regretted that the specimen is so young, but I think there can be no doubt that it is very nearly full-grown; the last molar is rising, though the milk-teeth are still unshed. This species is no doubt considerably larger than *P. humilis*, judging by the size of the skull, but I do not think its height can be more than 14 or 15 inches at the shoulder; it is a peculiarly thick-set rough-haired little animal, and looks rather like the kid of a goat with very fine legs.

In the skull the lachrymal pits are very deep, but have sloping sides, not descending nearly so abruptly as in *P. humilis*, in which species this is a very constant character even in quite young individuals. The nasals are very broad and are completely ossified far forward as in *Coassus*. The ascending rami of the premaxillæ rise abruptly, and, expanding very considerably in their upper half, fit into wide notches in the nasals, broader than in any *Coassus* skull which I have examined. The greater length of the molar series amounts to about one tooth, but the most striking difference is the shape of the rows: in *P. humilis* these are always bowed, in most specimens being strongly convergent before and behind, but I have seen one skull in which they do not narrow posteriorly: at the same time they do not widen, though much bowed in front; but in the new species they are set in two almost straight lines, slightly and gradually converging postero-anteriorly as in *Furcifer* and *Coassus*. There are many minor points in which the skull of this animal differs from *P. humilis*, and most of these are characteristic of one or other of the genera mentioned, or of both. The lachrymals and frontals are joined for a greater length, reducing the size of the antorbital vacuities, the lachrymal bone extending over a space 7 mm. wide all round the upperside of the pit; the infraorbital ridge is very thick and is cut off very abruptly, leaving sharp edges above and below; the squamosal portion of the zygomatic arch is more horizontal, not being bowed upwards, as in *P. humilis*. The foramen magnum is very large. The palatal bones differ somewhat in not having side processes extending towards the back of the last molars; the roof of the maxillary portion of the palate is much arched, particularly in the narrow part anterior to the molars: this forms very sharp edges to the sides.

Sir Victor Brooke, in his paper "On the Classification of the

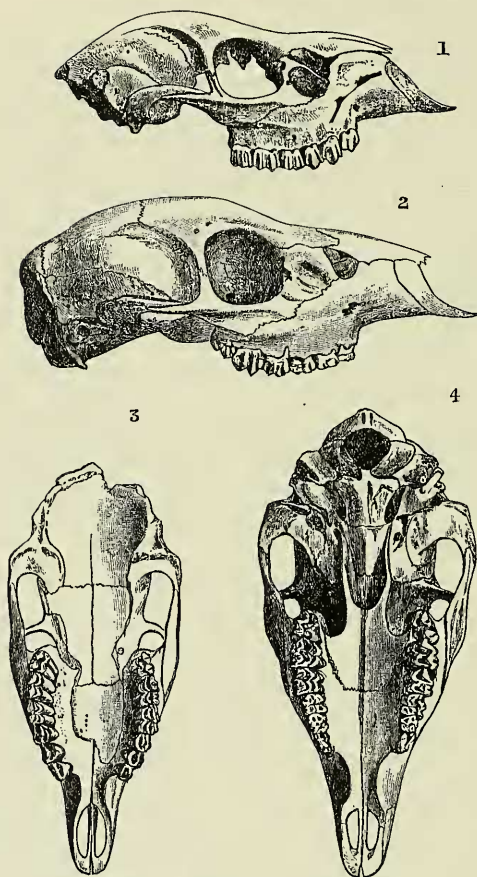


Fig. 1.—Side view of the skull of *Pudua humilis*.
 „ 2.—Side view of the skull of *Pudua mephistophiles*.
 „ 3.—Palatal view of skull of *Pudua humilis*.
 „ 4.—Palatal view of skull of *Pudua mephistophiles*.

Cervidæ," P. Z. S. 1878, p. 926, defining the genus *Pudua*, says "ascending rami of the præmaxillæ reaching the nasals"; I do not know what specimen he had before him, but I cannot find this character in any of the skulls in the collections of the British Museum or of the Royal College of Surgeons; and I should like here to express my thanks to Professor Stewart for kindly placing this latter collection at my disposal. This character has unfortunately been laid down by subsequent writers as distinguishing the genus *Pudua* craniologically from *Coassus*, whereas it is more particularly *coassine*. Gray, *Cat. Mamm.* iii. 1852, p. 240, says "Intermaxillary short, not reaching near to the nasal." Garrod, P. Z. S. 1877, p. 13, says "the gap being filled up by the appearance, superficially, of portions of the nasal turbinal." The situation is explained in these two passages, but Professor Garrod ought to have added that the gap is more often filled up by an anteriorly projecting process of the maxilla: I find the space filled up in the two different ways in other genera, and also the premaxilla reaching the nasals, or not, even in members of the same species; there are instances of this in the Museum Collection, in deer both of the Old and New World. I write this to show the worthlessness of this point as a generic or even a specific character; and, indeed, Sir Victor Brooke says he thinks Gray made too much of it; so there is no doubt that if he had examined a larger number he would have seen how extremely variable it is; but having found out as much as he had, I think it is a great pity he followed suit in making so much of this character. I have examined the feet, and osteologically they agree with *P. humilis*, the ectocuneiform and navicular-cuboid bones being all in one.

It will be seen that I have eradicated almost every distinguishing craniological character between this genus and *Coassus*, the much deeper lachrymal pit and the narrower middle incisors (a character I am unable to prove in the new species) alone remaining; so that if this animal is to be retained in the genus *Pudua*, Gray's definition will have to be modified to include both forms of skull as well as the outward differences in structure; but I do not consider these characters of sufficient weight to justify a new genus being formed, for if this were done, the *Pudus* would have to be placed in a separate subfamily to do fair justice to the osteology of the feet, in which respect they differ so widely from all other New-World Cervidæ; but this could not be justified, seeing that craniologically they are scarcely generically separable from either *Furcifer* or *Coassus*, wide as these two are apart *inter se* in the form of their horns, texture of the coat, and growth of the hair on the face, and in the tarsal tufts. Gray says the *Pudus* have tarsal tufts; I have failed to find any trace among the specimens in the Museum collection.

The genus *Pudua* may therefore be thus defined:—

New-World group of Cervidæ: Telemetacarpî.

A complete septum divides the nasal cavity into two distinct chambers.

Genus PUDUA.

Size very small. Hair coarse and brittle. Horns simple spikes. Metatarsal and metacarpal joints short. Tail very short or wanting. Ears short and rounded. No turn in the hair of the face. Infranasal portion of the rhinarium deep. Canines absent. Middle pair of incisors not broadly spatulate. Ascending rami of the premaxillæ may or may not reach the nasals. Lachrymal pit oval and very deep. Auditory bullæ not inflated. Ectocuneiform and navicular-cuboid bones united. Metatarsal bone not twice and metacarpal bone not $1\frac{1}{2}$ the length of the upper molar series.

2. ICHTHYOMYS SÖDERSTRÖMI, sp n. (Plate XX.)

The general colour of the whole of the upper parts dark olive-brown, the main coat of black-brown fur being narrowly tipped or having a subterminal band of dull yellow; thickly interspersed are longer shining black hairs, these being longest on the hind quarters, where they are broadly tipped with silvery white. On parting the fur the only colour found is soft grey, all the main fur having long fine footstalks, so that the whole coat below the surface, save for the few coarse shining hairs, is of a uniformly fine texture and very dense. Ears same colour as the head. The tail, which is thickly haired, is entirely dark brown or black, the fringe of longer hairs on the lower side being of absolutely the same colour; the fore feet are covered with short black hairs, with a few longer white hairs at the base of the claws; the hind feet are black above and below, excepting a few grey hairs round the claws and on the inner side of the tarsus the fringe of stiff hairs is white; the whole of the underparts from the chin to the vent are dirty white, the under-fur being grey and the outer silvery white; the inner sides of the fore and hind limbs are of a more pure white; the whiskers are black or white according to the position in which they grow on the face, those placed high up being black, and there are a few particoloured ones in the middle growth. Palate-ridges 3-3. Mammæ 6: one pair on the breast and two pairs on the belly.

Measurements of type skin (♀ ad. no. 96, i. 28.2, in Brit. Mus.):—

Head and body 180 mm. Tail 150 mm. Hind foot 31.5 mm. Ear 8.5 mm. Forearm and hand 31 mm.

Skull.—Greatest length 31.5 mm.; greatest breadth 16 mm. Nasals—length 12 mm.; breadth 3.9 mm. Intertemporal—breadth 4.9 mm. Interparietal—length 2 mm.; breadth 3 mm. Basal—length 29 mm.; basi-facial 18.5 mm.; basi-cranial 10.5 mm. Palate—length 16 mm.; breadth, outside $\frac{m.1}{6}$ mm., inside $\frac{m.1}{3}$ mm.; diastema 8.5 mm.; foramina 5.5 mm. Upper molar series—length 4.3 mm. Lower jaw—condyle to incisor tips 20.5 mm.

Hab. Rio Machangara, Ecuador. "Water Rat. Feb. 1895" (*L. S.*).

The skull is remarkably delicate and fragile for such an old animal (the teeth being much worn), and is smaller and narrower

than that of *I. stolzmanni*, the type of which is a very much younger individual; the facial portion is narrower, and there is a marked difference in the shape of the interparietal bones, as will be seen by the measurements: in *I. stolzmanni* this bone forms nearly a perfect parallelogram, while in the new species it is almost diamond-shaped. The zygomatic arch differs considerably, the maxillary processes being broader and standing out at a greater angle; the squamosal process appears rather slighter, but is more horizontal, not drooping so much as in the type species; it will therefore be seen that the "greatest breadth" given of the skulls is the same in both species, though the width across the brain-case is much less in the species now being described.

The mandibles are decidedly smaller, with very small and almost round condylar processes, whereas these are large and oval in *I. stolzmanni*.

In all particulars of structure of feet, ears, and tail this species seems to agree with the type of the genus *I. stolzmanni*, Thomas, P. Z. S. 1893, p. 339; the most conspicuous outward distinction being the difference in the coloration of the tail and feet. I think the make-up of the skin has largely to do with the greater length of head and body in the specimen under consideration, as the size of the feet and measurements of the skull do not bear out the supposition of its being a larger animal.

I am unable to throw any light on the cause of the large infra-orbital foramen; but I can say that no muscles pass through it, and that the nerve seemed very small when relaxed after it reached the Museum in a dry state.

3. *CHIRONOTES MINIMUS* (Zimm.).

♂ jr. Nanegal; alongside the rivers (no date) (*L. S.*).

2. On the Butterflies of St. Vincent, Grenada, and the adjoining Islands of the West Indies. By F. DuCANE GODMAN, F.R.S., and OSBERT SALVIN, M.A., F.R.S.

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The collection of Rhopalocera upon which the following notes are based was formed by Mr. Herbert H. Smith in the West-Indian islands of St. Vincent and Grenada and in some of the small islets called the Grenadines, situated between the two larger ones. A few specimens were also obtained from Barbados. Mr. Smith's skill as a collector is well known, and as he spent a considerable time in both St. Vincent and Grenada, and visited all parts of each island, we may fairly conclude that the present list embraces the name of nearly every species found in them.

The result proves, we think conclusively, that the Butterfly fauna
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